REMARKS

Claims 1, 2 and 8-26 are pending in the application. Claims 3-7 have been cancelled. Claims 15-26 were previously added. Claims 1 and 15 have been amended to more particularly point and define that which applicants claims as their invention.

Claims 1, 2, 7-18 and 21-26 are rejected under 35 U.S.C. 102(b) as being unpatentable over U.S. Patent No. 5,481,629 to Tabuchi, hereinafter "Tabuchi". Applicants respectfully traverse this rejection.

Independent claim 1 provides, *inter alia*, that a further optical waveguide is disposed on the substrate in the same planar layers of the output optical waveguide wherein the output optical waveguide and the further optical waveguide are aligned along an input-to-output propagation path, thereby providing substantial alignment of the output optical waveguide and the further optical waveguide.

Tabuchi discloses an integrated optical device having a silicon substrate, a planar optical waveguide formed partially on the surface of the silicon substrate, a V groove having a V-shaped cross section for position-aligning an optical fiber so as to optically couple the planar optical waveguide and the optical fiber, an edge input/output type optical semiconductor device bonded on the top surface of a bonding pedestal, and optical axis level changing means for optically coupling the optical waveguide and the optical semiconductor device (col. 3, lines 40-67).

Optical waveguides 20 are formed partially on the surface of a silicon substrate 1 (col. 6, lines 18-19). A V groove 5 is formed on the surface of the silicon substrate, extending in one direction along the optical axis from the a first end of the waveguide 20 which corresponds to a light input/output port (col. 6, lines 27-30). An optical fiber 9 is fitted in, and fixed to, the V groove 5, which provides position alignment between the optical fiber 9 and the optical waveguide 20 (col. 6, lines 30-32).

The active region of the optical semiconductor device 8 is at a position higher than a core region 4 of waveguide 20 (col. 6, lines 41-42). Spherical lenses 10 and 11, and optical member 12, are provided to displace the optical axis by an amount equal to a difference between the heights (col. 6, lines 42-47).

Tabuchi discloses an optical fiber optically coupled to a planar waveguide, which is coupled to a semiconductor device via optical components. The semiconductor device is higher than the optical fiber and planar waveguide, and thus optical components are required to couple radiation from the semiconductor device to the planar waveguide. In contrast, claim 1 provides that the length of optical waveguide is on a substrate **in the same planar layers of the output optical waveguide.** Tabuchi does not disclose an output optical waveguide as recited in claim 1.

Furthermore, in all of the embodiments disclosed in Tabuchi, the semiconductor device is a semiconductor laser, which emits optical radiation. Radiation is coupled from the semiconductor laser to the optical fiber. Therefore, the optical fiber described in the embodiments of Tabuchi is an **output optical fiber.** In contrast, claim 1 provides a waveguide disposed between an **input optical fiber** and an optical component.

Therefore, Tabuchi does not disclose or suggest that "a further optical waveguide is disposed on the substrate in the **same planar layers of the output optical waveguide** wherein the output optical waveguide and the further optical waveguide are aligned along an input-to-output propagation path, thereby **providing substantial alignment of the output optical waveguide and the further optical waveguide**," as recited in claim 1.

In addition, Tabuchi does not disclose or suggest an additional length of optical fiber positioned between the optical semiconductor device and the optical fiber. Thus, Tabuchi does not disclose or suggest "a length of optical fiber associated to said substrate between said at least one optical component and said output optical

waveguide so that said at least one optical component is interposed between said input optical fiber and said length of optical fiber," as recited in claim 15.

Accordingly, applicants respectfully submit that Tabuchi neither describes nor suggest that which is recited in the claims of the present invention and should be withdrawn. In this regard, Tabuchi does not anticipate under 35 USC 102(b) that which is recited in claims 1 and 15, as currently amended. To the contrary, Tabuchi utilizes an angled optical element 12 to provide for the altering of direction of the radiation from offset semiconductor device 8 to core region 4 (See Col. 6, lines 41-47), which causes it to be necessary to displace the optical axis by an amount equal to the difference of the heights between semiconductor 8 and core region 4, which is totally contrary to the planar alignment recited in the claims of the present invention.

Applicant respectfully traverses the rejection of claim 19 under 35 USC 103(a) as being unpatentable over Tabuchi in view of US Patent No. 5,999,303 ("the Drake patent"). The Drake patent does not overcome the substantial deficiencies recited above with regard to the non-alignment of the semiconductor and core region 4 of Tabuchi, hence it neither along nor in combination with Tabuchi describes or suggests that which is recited in claim 19.

Applicant respectfully traverses the rejection of claim 20 under 35 USC 103(a) as being unpatentable over Tabuchi in view of US Patent No. 5,787,214 ("the Harpin et al. patent"). The Harpin et al. patent does not overcome the substantial deficiencies recited above with regard to the non-alignment of the semiconductor and core region 4 of Tabuchi, hence it neither along nor in combination with Tabuchi describes or suggests that which is recited in claim 20.

In view of the above amendments and remarks, applicants respectfully request reconsideration and allowance of all of the claims presently in the Application.

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Respectfully submitted,

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